

## Cisco Optical Regenerator OC-48/STM-16 Bidirectional Regenerator

THE CISCO OPTICAL REGENERATOR IS A BIDIRECTIONAL OC-48/STM-16 REGENERATOR THAT SUPPORTS SINGLE-MODE OPTICAL FIBER TRANSMISSION WHEN CONNECTED TO AN OC-48 LINE CARD (PACKET-OVER-SONET [POS] OR DYNAMIC PACKET TRANSPORT [DPT] BASED) IN A CISCO 12000 SERIES GIGABIT SWITCH ROUTER (GSR). IT PROVIDES OC-48 LINE EXTENSIONS IN INCREMENTS OF UP TO 50 MILES (80 KM) BETWEEN CISCO 12000 GSRs. THIS NEW REGENERATOR IS THE FIRST IP-ADDRESSABLE OPTICAL REGENERATOR WITH CISCO IOS® SOFTWARE SUPPORT. CUSTOMERS CAN USE THE SAME COMMAND-LINE INTERFACE (CLI)-BASED NETWORK MANAGEMENT PLATFORM FOR CISCO SERIES 12000 GSR ROUTERS AS WELL AS FOR THE CISCO OPTICAL REGENERATOR.

### Summary of Features

#### Regeneration:

- Telecordia (Bellcore)/ITU SONET/SDH regeneration standards compliance
- Complete optical-to-electrical-to-optical regeneration
- Payload transmission delay of less than 20usec
- Regenerates the Synchronous Payload Envelope (SPE) and line layer overhead
- Terminates and generates the section layer overhead
- Provides monitoring and insertion of both the B1 and C1 bytes
- Use of Data Communication Channel (DCC) for management, enabling IP addressing and Simple Network Management Protocol (SNMP) access

#### Alarm and performance monitoring:

- Generates an L-AIS within 125us upon detecting a Loss of Signal (LOS) and Loss of Frame (LOF)
- Monitors for B1 parity errors and generate the appropriate alarms and alerts
- Provides error counters for section-level performance parameters, Errored Seconds (ES), Severely Errored Seconds (SES), and so on

#### Synchronization:

- Supports through timing, meeting Bellcore's category II jitter transfer requirements
- Provides a standby local oscillator for failure periods

#### Management:

- Manageable through SNMP
- Uses the DCC channel to provide IP addressing

- Cisco IOS software support
- Access to Cisco IOS software CLI for configuration capabilities using either a console port or a 10BaseT Ethernet port
- Supports SNMP MIBs, RFC1595, and RFC 1213

### Specifications

#### Physical

- Occupies one rack unit
- Weight: 10.3 lb (4.66 kg)
- Height: 1.72 in. (4.4 cm)
- Depth: 11.8 in. (30.0cm)
- Width: 17.3 in. (43.94 cm)

#### Reliability

- Network Element (NE) availability of 99.999 percent
- MTBF of nine years (Bellcore GR332 calculations)
- Meets all reliability and quality criteria of Bellcore documents TA-418, TR-499, and section 7.5 of GR-253

#### Environmental

- Operating temperature: 32 to 104 F (0 to 40 C)
- Storage temperature: -40 to 185 F (-40 to 85 C)
- Relative humidity: 5 to 95%, noncondensing
- Noise level: 51 dbA<sup>3</sup> at 3 ft. (0.914 m)

#### Regulatory Compliance

- Telecordia (Bellcore) GR-253, GR-917, and GR-418 (where applicable)
- ITU-T G.957 and G.958 (where applicable)

## Safety

- UL 1950, Third Edition
- CSA C22.2, No. 950-95, Third Edition
- EN 60950
- EN 41003
- AUSTEL TS001
- AS/NZS 3260
- EN 60825 Laser Safety (Class 1)
- Network Equipment Building Systems (NEBS) Level 3

## Electromagnetic Emissions Certification

- FCC Class A
- AS 3548 Class A
- EN 55022 Class A
- VCCI Class 1

## Immunity

- IEC-1000-4-2 ESD
- IEC-1000-4-3 radiated immunity
- IEC-1000-4-4 EFT
- IEC-1000-4-5 Surge
- IEC-1000-4-6 low-frequency common immunity
- IEC-1000-4-11 voltage dips and sags
- IEC-1000-3-2 power line harmonics

## LEDs

- OC-48 link activity indicator
- Ethernet and console port activity indicator
- Power on
- System ready/fail indicator

## Connector

- SC connector for OC-48/STM-16 links
- RJ45 connector for RS-232 console port and 10BaseTX Ethernet port

## Network Management

- CiscoView
- SNMP
- Management Information Base II (MIB-II)
- SONET/SDH MIB

## Power Supply

- Input voltage, AC power supply: 100-240 VAC
- Current: 1.0-0.5 A
- Frequency: 50-60 Hz
- Power dissipation: 100w (max.), 342 BTU<sup>2</sup>/hr

Table 1: Power Budget and Signal Requirements

Transceiver Typical	Power Budget	Transmit Power	Receiver Sensitivity	Maximum Distance
Single-Mode, Long Reach with 1510 nanometer (nm)	26 db	-2 to +3 dBm at 1500 to 1580 nm	-28 to -9 dBm	50 miles (80 km)

Table 2: Ordering and Availability

Product Number	Description	Availability	Cisco IOS Release
OR-OC48/STM16-SC	OC-48/STM-16 bi-directional optical Regenerator, SC connectors	October 1999	12.0(5)T or higher

## Special notes:

1. IP over DCC is planned to be supported on the OC-48/STM-16 line card with 12.0(8)S or higher.
2. DC power supply option is a post-initial FCS offering.

For additional information, please e-mail [cs-12000@cisco.com](mailto:cs-12000@cisco.com) or visit the Cisco Web site at <http://www.cisco.com/gsr>.



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